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Riverland Expedited Response Action Proposal

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) and Washington Department of Ecology (Ecology) recommended that the U.S. Department of Energy (DOE) prepare an expedited response action (ERA) for the Riverland Railroad Car Wash Pit (located in the Riverland Rail Yard) and the 600 Area Army Munitions Burial Site (Munitions Cache) (DOE-RL 1992). The ERA lead regulatory agency is EPA, and Ecology is the support agency. The ERA classification is non-time critical. The ERA will follow applicable sections of 40 CFR 300, Subpart E; the *Hanford Federal Facility Agreement and Consent Order* (Part 3, Article XIII, Section 38) (Ecology et al. 1989); the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA); the *Resource Conservation and Recovery Act of 1976* (RCRA); and the State of Washington *Model Toxics Control Act* (MTCA).

A non-time-critical ERA proposal includes preparation of an engineering evaluation/cost analysis (EE/CA) section. The EE/CA is a rapid, focused evaluation of available technologies using specific screening factors to assess feasibility, appropriateness, and cost.

The ERA proposal will undergo reviews by Westinghouse Hanford Company (WHC), DOE, EPA, Ecology, and the public. Ecology and EPA will issue an Action Agreement Memorandum after resolution of all review comments. The memorandum will authorize remediation activities.

The ERA goal is to reduce the potential for any contaminant migration to the soil column, groundwater, and Columbia River. The ERA may be the final remediation of the 100-IU-1 Operable Unit. A No Action Record of Decision may be issued after cleanup completion.

2.0 SITE DESCRIPTION

2.1 LOCATION AND PHYSICAL DESCRIPTION

The ERA is located in the 100-IU-1 Operable Unit (Figures 1 and 2). The 100-IU-1 Operable Unit (about 13 mi^2) boundaries are Washington State Route 240 on the east, Washington State Highway 24 on the south, Hanford Site boundary on the west, and the Columbia River on the north.

In addition to the Riverland Rail Yard Maintenance Facility and the Munitions Cache, the 100-IU-1 Operable Unit contains the following potential hazardous waste sites: two anti-aircraft artillery (AAA) sites (H70 and H71), a pile of empty pesticide/herbicide containers, military exercise debris sites, the McGee Ranch fish farm, and various homestead sites.

There is a small area in the operable unit under Bonneville Power Administration (BPA) jurisdiction (DOE-RL 1991) (Figure 2, Location G). This BPA area is not part of the operable unit. The BPA is responsible for any cleanup actions in this area.

2.1.1 Riverland Rail Yard Maintenance Facility

The Riverland Rail Yard (Figure 2, Location A) was constructed in 1943 to support Hanford construction and operation activities and was the terminus of the Milwaukee Railroad (Figure 3). All rail freight destined for Hanford was delivered to this yard during the early years of the Hanford Manhattan Engineering District Project. There was a 12,000-gal underground diesel fuel storage tank and distribution piping system.

The Riverland Rail Yard Maintenance Facility (Building 6718) operated from 1943 until October 1954 when operations began in the 1100 Area 1171 Building railroad maintenance facility. Railcar decontamination continued in the two maintenance pits until 1956.

Radioactive decontamination allowed railroad maintenance personnel to work on railcars and locomotives. Most decontamination activities concentrated on the wheels, axles, brake assemblies, bearing journal housings, and other rail vehicle undercarriage oil- or grease-coated parts. Diesel locomotives also had the engine compartment, radiators, and fan housings decontaminated.

The radioactive contamination levels were low but smearable. Contaminants common to the rail equipment are fission product particles (ruthenium, zirconium, niobium, iodine, etc.). These particles are dry and very light. They can be easily airborne. The contamination level was typically <1 mr/hr with an occasional 200 mr/hr reading. Radiation monitoring personnel performed the decontamination to a nonsmearable level using acetone-soaked adsorbent pads. The bagged contaminated pads, gloves, and other materials were sent to the 200 West Area for burial.

Periodic maintenance floor pit cleaning consisted of brushing the walls with a broom and diesel fuel and rinsing with water. The rinse drained through the pit floor drains (Figure 4).

Facility decontamination occurred about 1963. The Riverland Rail Yard facility structures were sold to the public. About 2 ft of soil covers the foundations. Followup radiological surveys in 1977, 1978, and 1993 revealed only natural background radiation levels (8 to 14 μR/hr).

2.1.2 Munitions Cache

The munitions cache (Figure 2, Location C) received various military explosives in the 1970's. The explosives were remnants left from various military exercises in the area. The site consisted of a wooden box placed in a hole in the ground about 2 by 3 by 2 ft deep. On May 22, 1986, the box with contents went to the Yakima Firing Range for destruction (DOE-RL 1992). The empty hole is all that remains at the site.

2.1.3 Potential Waste Sites

The AAA sites (Figure 2, Locations B1 and B2) were established in 1951 (Figure 5). Nike missile battery sites started replacing the artillery sites in 1954. Only a rock walkway and concrete step remnants remain at the H71 AAA site. A few covered foundations and cleared areas remain at the H70 AAA site. There are no visible signs of any hazardous waste locations.

Past military exercises have left discarded battery packs, communication wire, ammunition, and debris scattered across the southwest portion of the operable unit (Figure 2, Location E).

Debris piles, cisterns, irrigation pipe, and fence wire mark various homestead sites. These homesteads are eligible for inclusion on the National Register of Historic Places (36 CFR Sections 60 and 800). A visual inspection found one homestead that contains a pile of empty herbicide/pesticide containers (Figure 2, Location D). The condition of the containers suggests that they were placed there after the Hanford Project was well underway.

There are the remains of a commercial fish farm at the McGee Ranch site (Figure 2, Location F). There are many plastic-lined ditches with a connecting plastic pipe water distribution system.

2.2 CHARACTERIZATION ACTIVITIES

Site characterization activities included geophysical nonintrusive ground-penetrating radar (GPR) and electromagnetic induction (EMI) surveys, sample trenches, soil, and soil gas sampling.

2.2.1 Geophysical Surveys

At the Riverland Rail Yard site, GPR and EMI surveys located the maintenance pits (Figure 6). The surveys found that the underground fuel tank was not there (Figure 7).

AAA site GPR and EMI surveys were conducted only at the H70 AAA site (Figures 8 through 11). A H71 AAA site visual inspection found only concrete steps and a rock walkway. The H70 site visual inspection found some man-made mounds. Three mounds were chosen based on their appearance. These surveys did not identify any anomalies to warrant further investigation.

2.2.2 Sample Collection

Since there are no signs of vegetation stress at the various waste sites and followup radiological surveys in 1977 and in 1978 indicated radiation levels indistinguishable from natural background, sampling was kept to a minimum. No serious contamination problems were anticipated.

Based on the Riverland Rail Yard Maintenance Facility GPR surveys, concrete sample collection occurred at the uncovered floor drains (Figure 12, points 1 through 3). Background concrete sample collection took place at a concrete pad north of the maintenance facility. The drainpipe sample

(point 4) collection was about 43 ft south of the maintenance facility at the sewerline connection. The sample was from soil inside the pipe at the tee. Soil gas sample collection bracketed the underground diesel fuel tank location. A 30-ft grid located 11 collection points. The munitions cache and homestead pesticide/herbicide site each had a soil sample collected.

2.3 CONTAMINANTS OF CONCERN

The contaminants of concern for each site are as follows:

1. Man-made radioactive particles and volatile organic compounds (Riverland Rail Yard Maintenance Facility)
2. Nitrates (Munitions Cache)
3. Pesticides and herbicides (Homestead Site).

2.3.1 Sample Data

Laboratory sample data indicated elevated levels of total petroleum hydrocarbons (TPH) diesel fuel (220 to 1,800 ppm), TPH heavier than diesel (motor oil) (2,210 ppm), and pesticides (Appendix B). The nitrate levels are at natural background values. Soil gas sample analysis did not indicate the presence of contaminants (Appendix B).

Field radiological surveys of the Riverland Rail Yard did not detect any radiation levels above natural background (8 to 12 µrad/hr). The gamma spectrum results indicate that the site contains small quantities of man-made radionuclide contamination (<20 pCi/g).

The characterization data support the conclusion that the radiological hazards are well below the levels requiring radiological controls. The activities associated with the ERA will not cause any unique hazards other than the normal industrial hazards associated with excavation operations.

3.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Section 7.5 of the Action Plan in the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1989) contains the basic description of applicable or relevant and appropriate requirements (ARAR).

There are no applicable federal cleanup standards or chemical-specific ARARs for compounds in soil (hazardous or radioactive) except the EPA standards for lead and radium. The cleanup standards for this ERA have been developed using Washington State Regulations *Model Toxics Control Act* (MTCA) (WAC 173-340) and qualitative risk assessment formulas. The risk assessment identified that cleanup levels for Aldrin and Dieldrin must be below 2 ppm.

The Riverland Rail Yard Maintenance Facility (Building 6718) sampling identified diesel fuel and motor oil as the contaminants of concern. The MTCA Method A cleanup levels apply (WAC 173-340) since the cleanup action involves few hazardous substances. "Under Method A, cleanup levels for hazardous substances are established at concentrations at least as stringent as concentrations specified in applicable state and federal laws and Tables 1, 2, or 3" (WAC 173-340). Table 1 contains the cleanup level for groundwater. Table 2 lists the cleanup level for soil, which for diesel and motor oil is 200 mg/kg. Table 3 lists the diesel and motor oil cleanup levels for industrial soil at 200 mg/kg.

The pesticide container site sampling identified Aldrin and Dieldrin as the principal pesticide contaminants of concern.

4.0 EVALUATION OF REMEDIAL ALTERNATIVES

After receiving direction to develop an ERA proposal, DOE evaluates the cleanup alternatives for timely ERA implementation. The Riverland ERA is a non-time-critical response action per EPA determination. This requires an EE/CA per FR Vol. 55, No. 46/March 8, 1990, p. 8843, and Title 40, Code of Federal Regulations, Subpart E 300.415. The EE/CA is similar to a focused feasibility study. It considers ARARs, protection of the environment and human health, timeliness, effectiveness, and cost to select a preferred alternative.

Selecting a preferred alternative is a two-phased process. The first phase is initial screening of potential cleanup activities against the criteria of timeliness and environmental protection. The second phase rates the alternatives that pass the screening against additional criteria to select a preferred ERA performance method. The second criteria set includes technical feasibility and reliability, administrative and managerial feasibility, and cost.

The technical feasibility and reliability criterion drops innovative, conceptual, and emerging cleanup technologies from consideration. These require further development and do not have a successful record for the application under consideration. This criterion also includes the degree of environmental protection and potential for impacting the interim record of decision for the 100-IU-1 Operable Unit.

Administrative and managerial feasibility focuses on the ability to perform a cleanup activity and includes equipment, permits, and public acceptance.

The cost criterion, while an important factor in the overall evaluation, is not the most significant criterion for selecting the preferred cleanup activity. While controlling cost is important, protecting the environment and public health in a timely manner is more important.

5.0 REMEDIAL ALTERNATIVES

Alternatives were developed that met the intent of the ERA guidance. This includes consideration of a no action alternative in addition to any other EE/CA proposed alternatives.

5.1 NO ACTION ALTERNATIVE

The no action alternative will leave the operable unit as it is. This option is not acceptable since the characterization sample results exceed cleanup levels. The sampling data levels indicate that some cleanup action must be taken for an interim record of decision.

5.2 OPERABLE UNIT CLEANUP ACTION LASER ALTERNATIVE

Cleanup activities will include the following:

1. Pesticide Can Site--Crush the pesticide cans and place in a waste drum for offsite disposal. Perform field screening to define the area and depth of ground contamination. Excavate the contaminated soil and place in drums for offsite hazardous waste disposal. Perform confirmatory sampling after completion of the removal activity.

2. Ordnance--Since a machine gun ammunition belt was found and the munitions cache held various discarded munitions, an ordnance survey will be performed by the U.S. Army Corp of Engineers. It will determine the existence/nonexistence of any additional ordnance in the operable unit. There is a slight possibility that some ordnance may be buried in the unit. Any ordnance found will be disposed of according to established ordnance disposal practices.

3. Fill in munitions cache hole.

4. Riverland Rail Yard Maintenance Facility--The cleanup goal is to reduce the diesel fuel residue to below 200 ppm. Cleanup activities will consist of excavating fill material from the wash pits and removing vitrified clay drain pipes and contaminated soils. The soil and pipe fragments will be bioremediated by landfarming while the xenon flash lamp will be used for concrete decontamination. The lamp raises the surface temperature of the concrete to approximately 1500 °C in a few microseconds, resulting in the ablative removal of the total petroleum hydrocarbon contaminants. Perform confirmatory sampling after completion of the cleanup activity.

5. Landlord Cleanup--Perform a landlord cleanup of the operable unit. The cleanup activities will include trash and debris removal. All waste will be disposed of at an appropriate waste disposal facility.

5.3 HAZARDOUS WASTE REMOVAL AND OFFSITE DISPOSAL ALTERNATIVE

Activities will include the following:

1. Pesticide Can Site--Crush the pesticide cans and place in a waste drum for offsite disposal. Perform field screening to define the area and depth of ground contamination. Excavate the contaminated soil and place in drums for offsite hazardous waste disposal. Perform confirmatory sampling after completion of the removal activity.

2. Ordnance--Since a machine gun ammunition belt was found and the munitions cache held various discarded munitions, an ordnance survey will be performed by the U.S. Army Corp of Engineers. It will determine the existence/nonexistence of any additional ordnance in the operable unit. There is a slight possibility that some ordnance may be buried in the unit. Any ordnance found will be disposed of according to established ordnance disposal practices.

3. Fill in munitions cache hole.

4. Riverland Rail Yard Maintenance Facility--Remove the concrete-lined pits (about 985 ft^3) and drain pipes. Send the total petroleum hydrocarbon contaminated concrete, soil, and pipes for offsite hazardous waste disposal. Perform sampling of soil beneath the pits for diesel fuel contamination. Place any contaminated soil in the barrels for offsite hazardous waste disposal. Perform confirmatory sampling after removal of contaminated materials from the site.

5. Landlord Cleanup--Perform a landlord cleanup of the operable unit. The cleanup activities will include trash and debris removal. All waste will be disposed of at an appropriate waste disposal facility.

5.4 OPERABLE UNIT CLEANUP ACTION SANDBLASTING ALTERNATIVE

Cleanup activities will include the following:

1. Pesticide Can Site--Crush the pesticide cans and place in a waste drum for offsite disposal. Perform field screening to define the area and depth of ground contamination. Excavate the contaminated soil and place in drums for offsite hazardous waste disposal. Perform confirmatory sampling after completion of the removal activity.

2. Ordnance--Since a machine gun ammunition belt was found and the munitions cache held various discarded munitions, an ordnance survey will be performed by the U.S. Army Corp of Engineers. It will determine the existence/nonexistence of any additional ordnance in the operable unit. There is a slight possibility that some ordnance may be buried in the unit. Any ordnance found will

be disposed of according to established ordnance disposal practices.

3. Fill in munitions cache hole.

4. Riverland Rail Yard Maintenance Facility--The cleanup goal is to reduce the diesel fuel residue to below 200 ppm. Cleanup activities will consist of excavating fill material from the wash pits and removing vitrified clay drain pipes and contaminated soils. The soil and pipe fragments will be bioremediated by landfarming. The concrete surfaces of the maintenance pits will be sandblasted followed by bioremediation of the sandblasting residue with the contaminated soils. Perform confirmatory sampling after completion of the cleanup activity.

5. Landlord Cleanup--Perform a landlord cleanup of the operable unit. The cleanup activities will include trash and debris removal. All waste will be disposed of at an appropriate waste disposal facility.

6.0 ENGINEERING EVALUATION AND COST ANALYSIS

An EE/CA involves a two-step process that focuses on each of the alternatives described in Section 5.0. The first step is the application of two screening factors to the alternatives. The two screening factors are (1) timeliness (can the project be completed in a timely manner) and (2) protection of the environment and public health. The alternatives that satisfy this initial step screening then go through the last step of the screening process.

There are three second-step selection criteria: (1) reliability and technical feasibility, (2) administrative and managerial feasibility, and (3) reasonable cost. The alternative that passes the screening factors and ranks highest among the selection criteria becomes the preferred remedial alternative for the ERA.

6.1 SCREENING FACTOR EVALUATION

Alternative screening for timeliness involves considering whether it is practical within the 1-year ERA time frame. Public health and environment protection screening uses the *National Oil and Hazardous Substances Pollution Contingency Plan* (EPA 1990) requirement to drop options that do not meet federal ARARs. The screening factor evaluation discussion and summary Table 1 follows.

Table 1. Alternative Screening Factor Evaluations.

Alternative	Timeliness	Protect Public Health	Protect Environment	Retained for Evaluation
No Action Required	Not a factor	Public health risks are not eliminated	Environmental risks are not eliminated	No
Operable Unit Laser Cleanup Action	Can be completed within 1 yr	Public health risks are eliminated	Environmental risks are eliminated	Yes
Offsite Waste Disposal and Cleanup Action	Can be completed within 1 yr	Public health risks are eliminated	Environmental risks are eliminated	Yes
Operable Unit Sandblasting Cleanup Action	Can be completed within 1 yr	Public health risks are eliminated	Environmental risks are eliminated	Yes

6.1.1 No Action Alternative

Time is not a factor for the no action alternative. The no action alternative deals only with the known potential hazardous waste sites. It does not allow for debris cleanup. The operable unit has numerous debris piles that should be cleaned up. This cleanup activity may discover additional hazardous waste sites. Therefore, selection of the no action alternative is unacceptable for this ERA. It is not retained for further evaluation.

6.1.2 Operable Unit Cleanup Action Laser Alternative

Completion time is less than 1 year (approximately 4 months). This alternative will eliminate all environmental and public health risks.

6.1.3 Hazardous Waste Removal and Offsite Disposal Alternative

Completion time is less than 1 year (approximately 4 months). This alternative will eliminate all environmental and public health risks.

6.1.4 Operable Unit Cleanup Action Sandblasting Alternative

Completion time is less than 1 year (approximately 4 months). This alternative will eliminate all environmental and public health risks.

6.2 SELECTION CRITERIA EVALUATION

Only the no action alternative failed the EE/CA screening factor process. The remaining alternatives will now be evaluated using the selection criteria.

6.2.1 Reliability/Technical Feasibility

The reliability/technical feasibility criterion includes rating the technology, the alternative effectiveness in achieving the ERA goal, the alternative's useful life, the operation and maintenance requirements, the constructibility, the time required, and the environmental impacts as a result of implementation.

6.2.1.1 Operable Unit Cleanup Action Laser Alternative. This alternative is technically feasible. The xenon flash laser is a technology that will not generate any secondary hazardous waste (e.g., sandblasting generates a residue sand as a secondary waste). This technology has been used to clean diesel fuel spills on engines and is used extensively to strip paint from aircraft. The technology will be effective in meeting the ERA goal by removing all potential contamination.

Since this alternative removes all debris (except archeological) from the operable unit, a No Further Action Record of Decision could be issued.

Cleanup time will be up to 3 months depending on weather conditions, bioremediation (landfarming) success, and manpower availability.

Environmental impacts will be fugitive dust, equipment exhaust fumes, and CO_2 and water vapor from the xenon flash. A water truck will control the fugitive dust.

6.2.1.2 Hazardous Waste Removal and Offsite Disposal Alternative. This alternative is technically feasible and concentrates on removing hazardous waste from the operable unit that is a threat to the public and/or environment.

Since this alternative removes all debris (except archeological) from the operable unit, a No Further Action Record of Decision could be issued.

Cleanup time will be up to 3 months depending on weather conditions and manpower availability.

Environmental impacts will be fugitive dust and equipment exhaust fumes. A water truck will control the fugitive dust.

6.2.1.3 Operable Unit Cleanup Action Sandblasting Alternative. This alternative is technically feasible. Sandblasting is an established cleanup technology that generates a secondary waste (blasting sand). It will be effective in meeting the ERA goal by removing all hazardous contamination.

Since this alternative removes all debris (except archeological) from the operable unit, a No Further Action Record of Decision could be issued.

Cleanup time will be up to 3 months depending on weather conditions, bioremediation (landfarming) success, and manpower availability.

Environmental impacts will be fugitive dust and equipment exhaust fumes. A water truck will control the fugitive dust.

6.2.2 Administrative/Managerial Feasibility

This section describes the administrative and managerial feasibility implications of all alternatives.

This criterion involves considering the implications of administrative and managerial requirements (e.g., permit requirements, transportation needs, public concerns, and nontechnical implementation aspects). The DOE requires *National Environmental Policy Act of 1969* (NEPA) documentation to perform the removal activities under CERCLA. The specific applicable NEPA document is a categorical exclusion (CX) as proposed in 10 CFR 1021 (DOE 1990). The CX applies to environmental restoration and waste management.

6.2.2.1 Operable Unit Cleanup Action Laser Alternative. The alternative requires routine work control documentation but may have difficulty in obtaining administrative acceptance. The alternative may provide the basis for a No Further Action Record of Decision for the operable unit.

6.2.2.2 Hazardous Waste Removal and Offsite Disposal Alternative. The alternative requires routine work control documentation and is capable of obtaining administrative acceptance. The alternative may provide the basis for a No Further Action Record of Decision for the operable unit.

6.2.2.3 Operable Unit Cleanup Action Sandblasting Alternative. The alternative requires routine work control documentation and is capable of obtaining administrative acceptance. The alternative may provide the basis for a No Further Action Record of Decision for the operable unit.

6.2.3 Reasonable Cost

The reasonable cost criterion rates the relative costs of all alternatives. It does not include engineering or administrative costs incurred before implementation of an alternative. Detailed cost estimates are provided in Appendix C.

6.2.3.1 Operable Unit Cleanup Action Laser Alternative. Estimated cost to complete is $457.0K.

6.2.3.2 Hazardous Waste Removal and Offsite Disposal Alternative. Estimated cost to complete is $448.0K.

6.2.3.3 Operable Unit Cleanup Action Sandblasting Alternative. Estimated cost to complete is $312.9K.

6.3 PREFERRED REMEDIAL ALTERNATIVE

A summary of the Alternative Selection Criteria Evaluation is presented in Table 2.

All three alternatives survived the Selection Criteria evaluation. The only difference is the cost estimate.

The preferred alternative is to perform the sandblasting option based on the estimated costs. This alternative's completion may allow issuance of a No Action Record of Decision.

Table 2. Alternative Selection Criteria Evlauation.

Criteria	Laser Cleanup	Hazardous Waste Removal	Sandblasting Cleanup
Effectiveness	Completely cleans Operable Unit	Completely cleans Operable Unit	Completely cleans Operable Unit
Environmental Impacts	None	None	None
Reliability	Proven Technology	Proven Technology	Proven Technology
Useful Life	Indefinite	Indefinite	Indefinite
Administrative/ Managerial Feasibility	Noise and fugitive dust pose minimal nuisance during activities. Requires health and safety protection for activities. DOE NEPA Categorical exclusion required.	Noise and fugitive dust pose minimal nuisance during activities. Requires health and safety protection for activities. DOE NEPA Categorical exclusion required.	Noise and fugitive dust will be a major problem during sandblasting activities. Requires health and safety protection for activities. DOE NEPA Categorical exclusion required.
Cost	$457.0K	$448.0K	$312.9K

7.0 REFERENCES

DOE, 1990, *National Environmental Policy Act Implementing Procedures*, Title 10, Code of Federal Regulations, Part 1021 Proposed U.S. Department of Energy Rule, Federal Register, Vol. 55, No. 213, Friday, November 2, 1990, U.S. Department of Energy, Washington, D.C.

DOE-RL, 1991, *Hanford Facility Dangerous Waste Permit Application*, DOE/RL-91-28, Rev. 0, U.S. Department of Energy, Richland Field Office, Richland, Washington.

DOE-RL, 1992, *Hanford Site Waste Management Units Report*, DOE/RL-83-30, Rev. 1, U.S. Department of Energy, Richland Field Office, Richland, Washington.

Ecology, EPA, and DOE, 1991, *Hanford Federal Facility Agreement and Consent Order*, et seq., Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

EPA, 1990, *National Oil and Hazardous Substances Pollution Contingency Plan*, Title 40, Code of Federal Regulations, Part 300, U.S. Environmental Protection Agency, Washington, D.C.

USGS, 1986, *Coyote Rapids, Wash.*, map no. 46119-F5-TF-024, U.S. Geological Survey, Denver, Colorado.

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Figure 1. Hanford Site Map Showing Location of the 100-IU-1 Operable Unit.

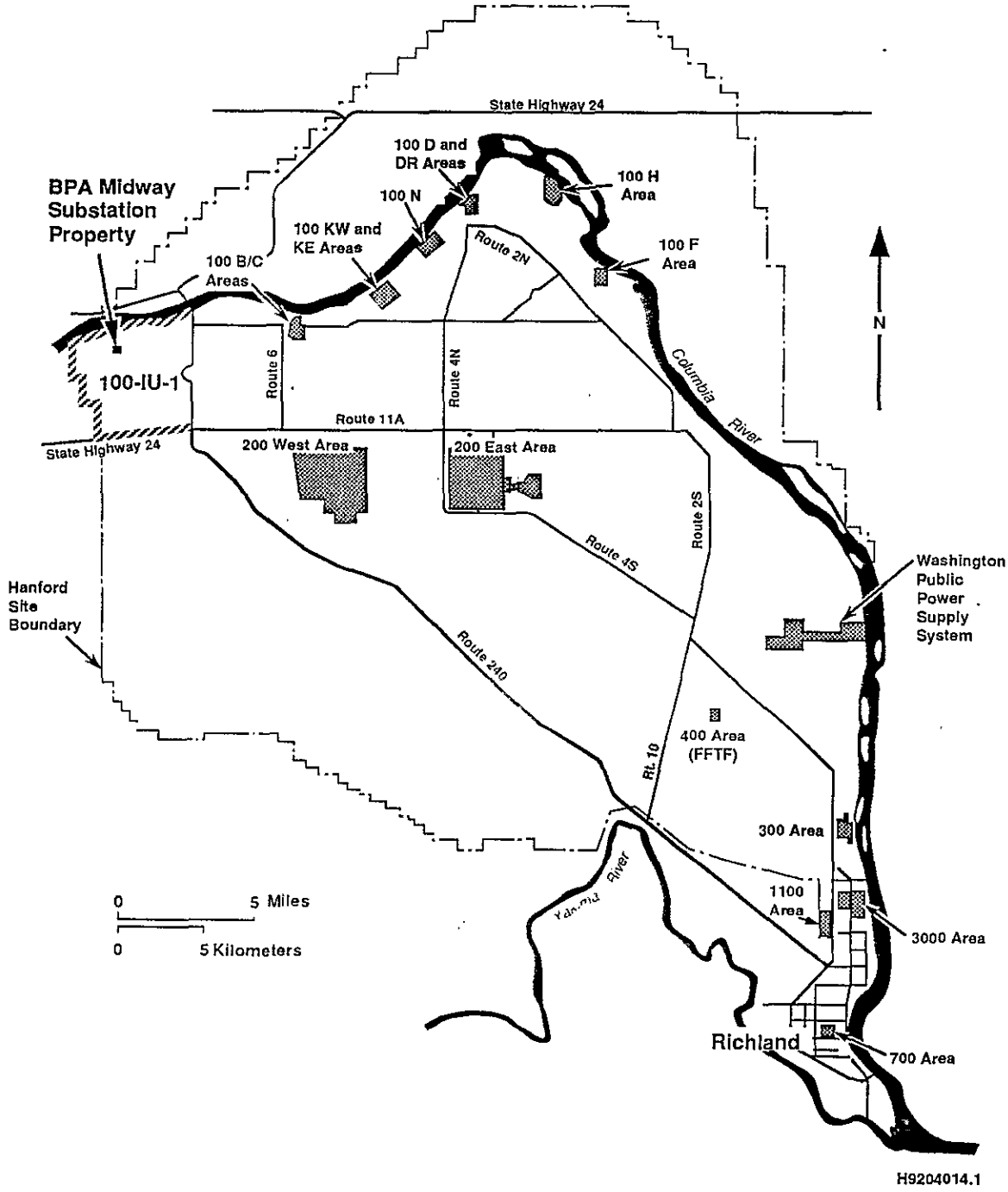
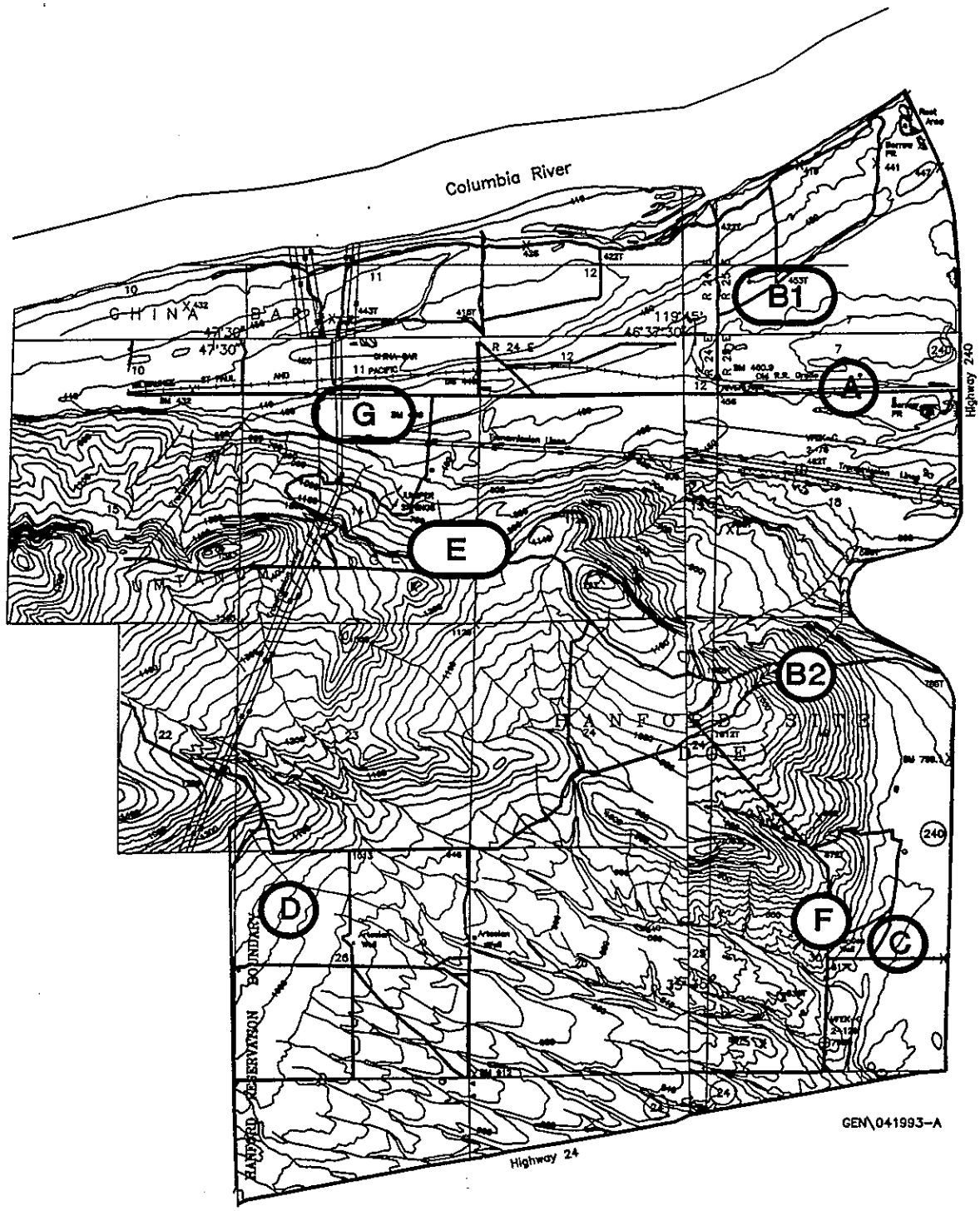


Figure 2. Waste Site Locations (USGS 1986).



A— Riverland Rail Yard Site
B1— Anti-Aircraft Artillary Site, H71
B2— Anti-Aircraft Artillary Site, H70
C— Munitions Cache Site
D— Pesticide/Herbicide Site
E— Transite Dump Site
F— McGee Fish Farm
G— BPA Property

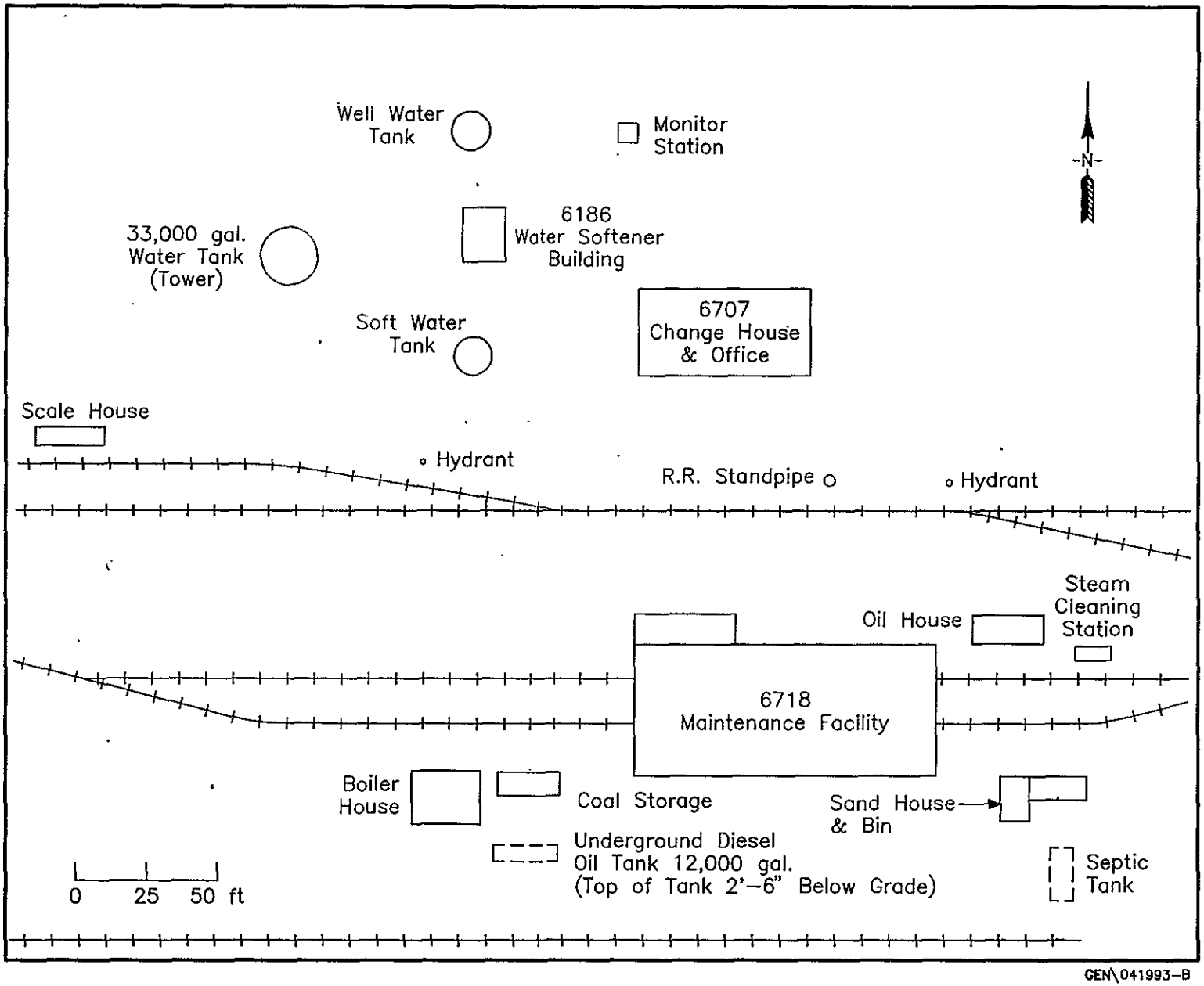


Figure 3. Riverland Rail Yard.

Figure 4. Riverland Rail Yard Maintenance Facility Floor Drain Plan.

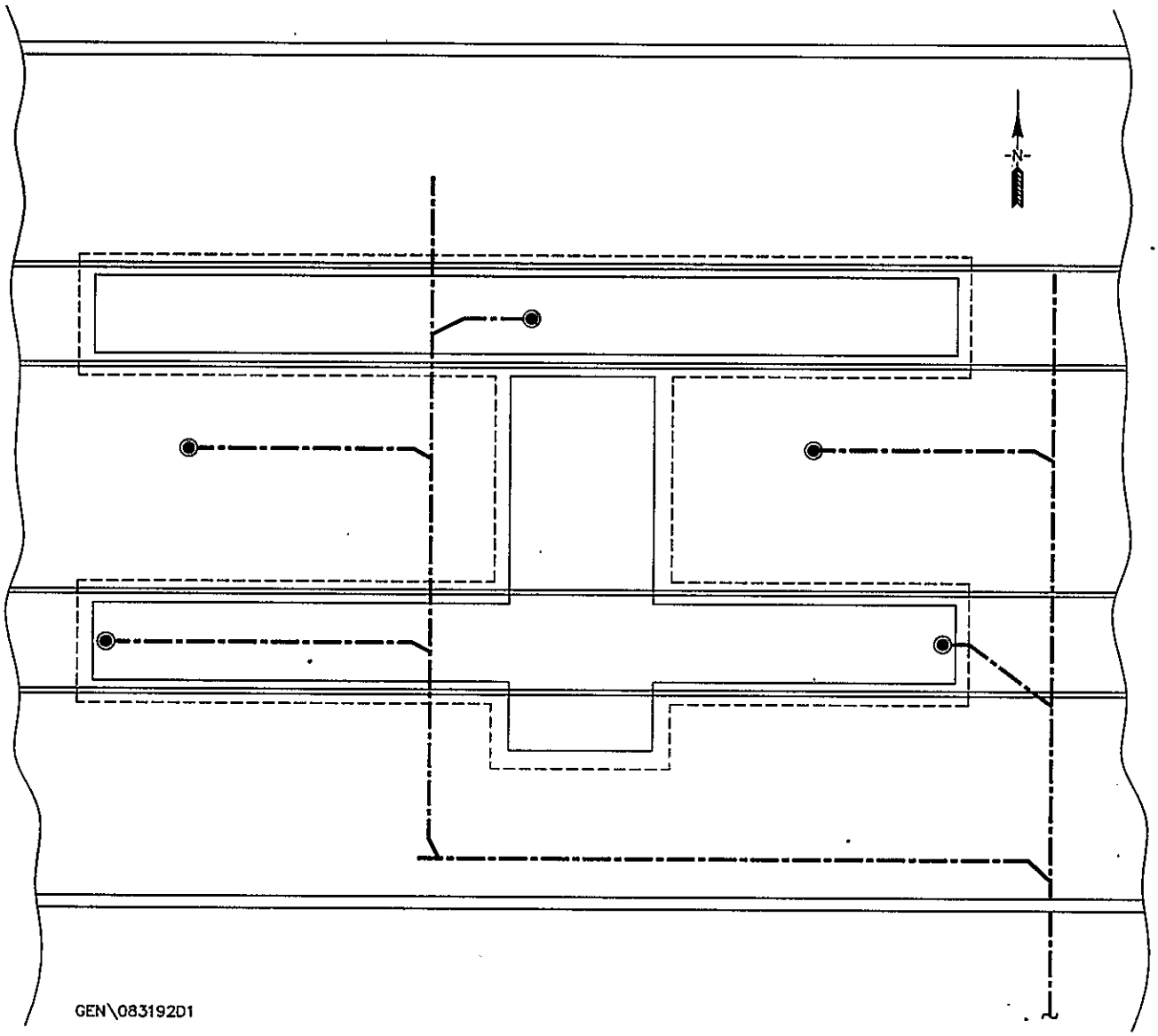
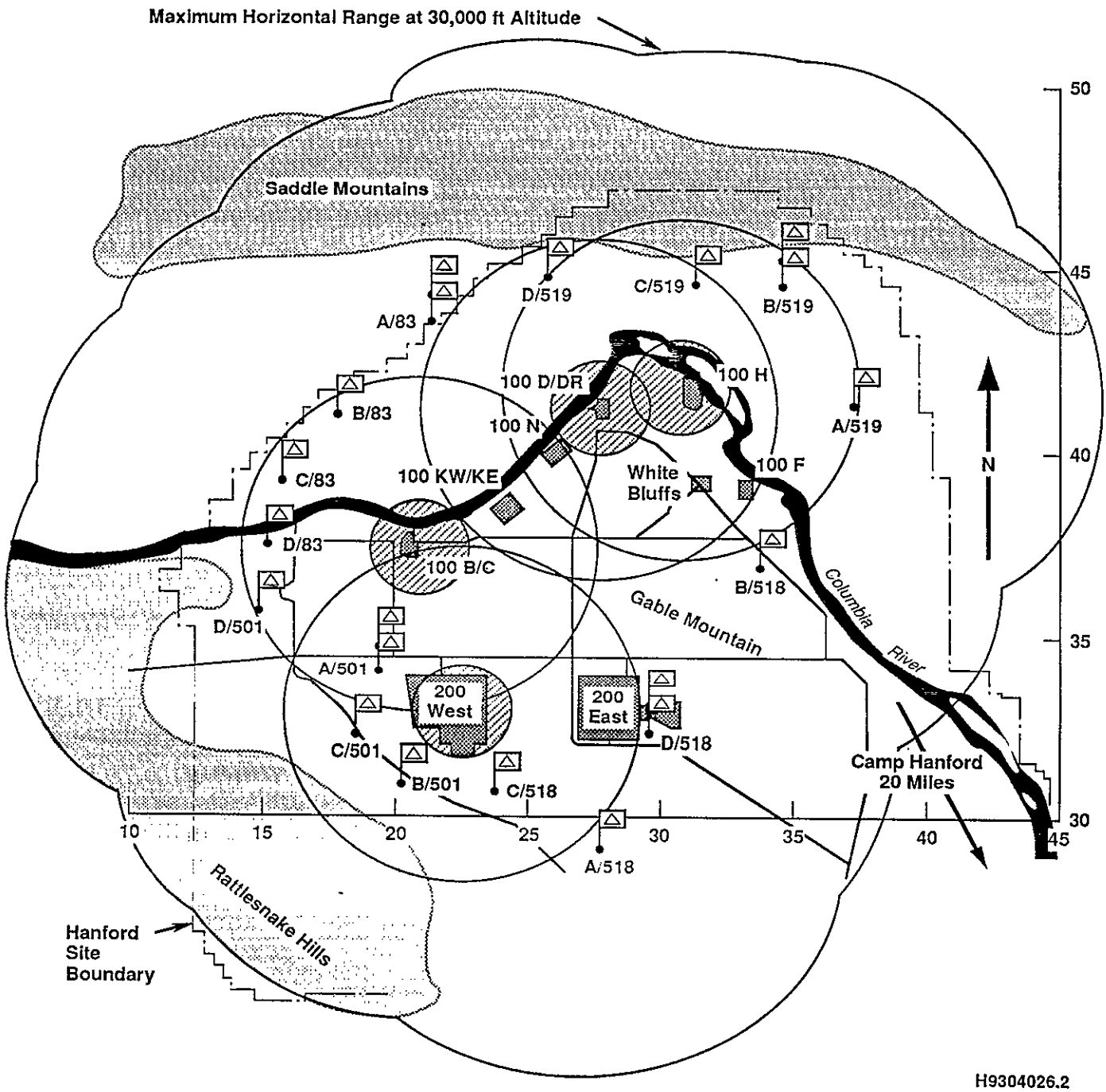


Figure 5. 1952 Hanford Defense Map.



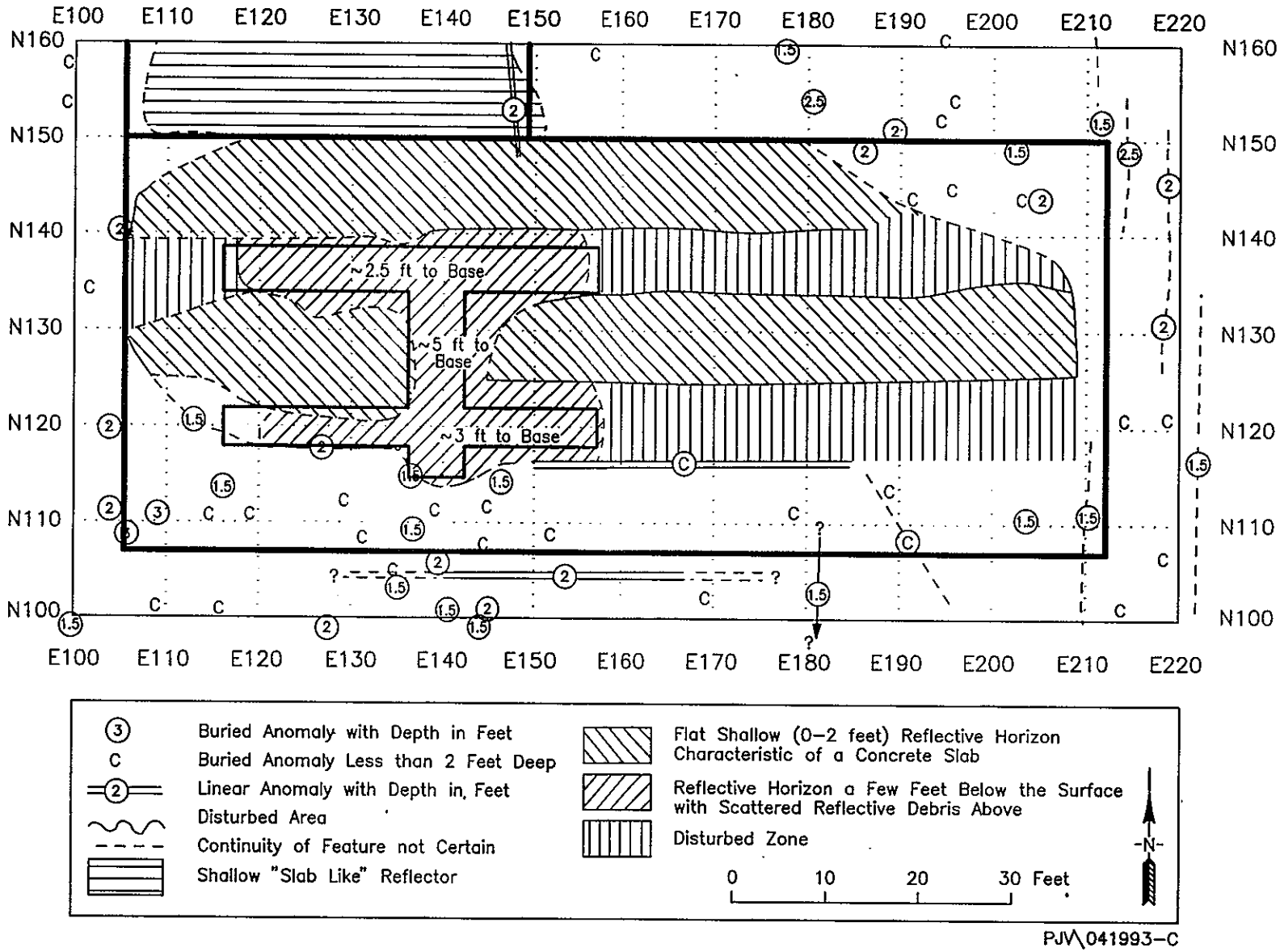


Figure 6. Riverland Rail Yard Maintenance Facility Ground-Penetrating Radar Survey Summary with Facility Overlay.

Figure 7. Underground Diesel Tank Ground-Penetrating Radar Survey with Facility Overlays.

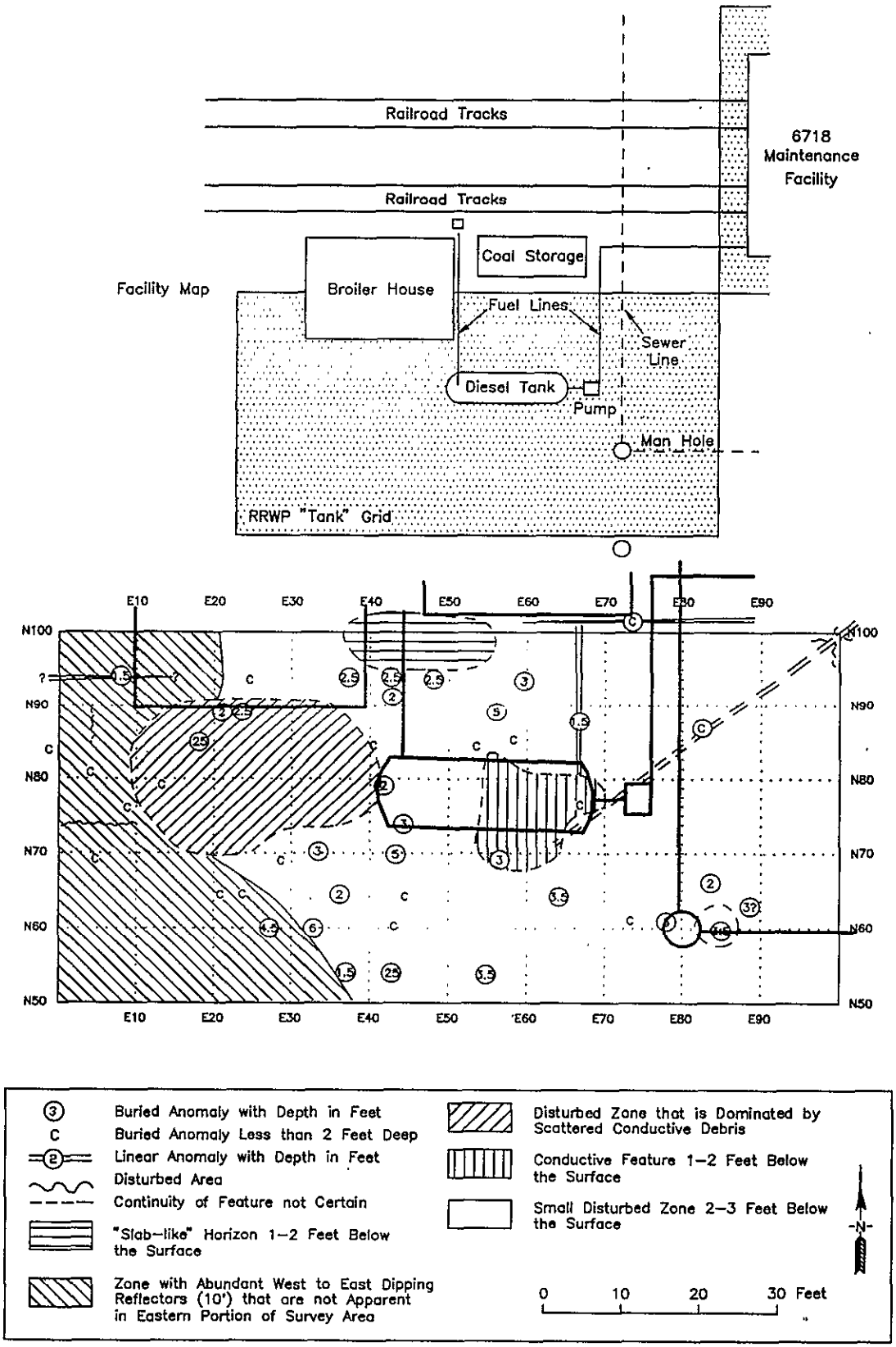


Figure 8. H 70 Anti-Aircraft Artillery Site
Ground-Penetrating Radar Survey Sites.

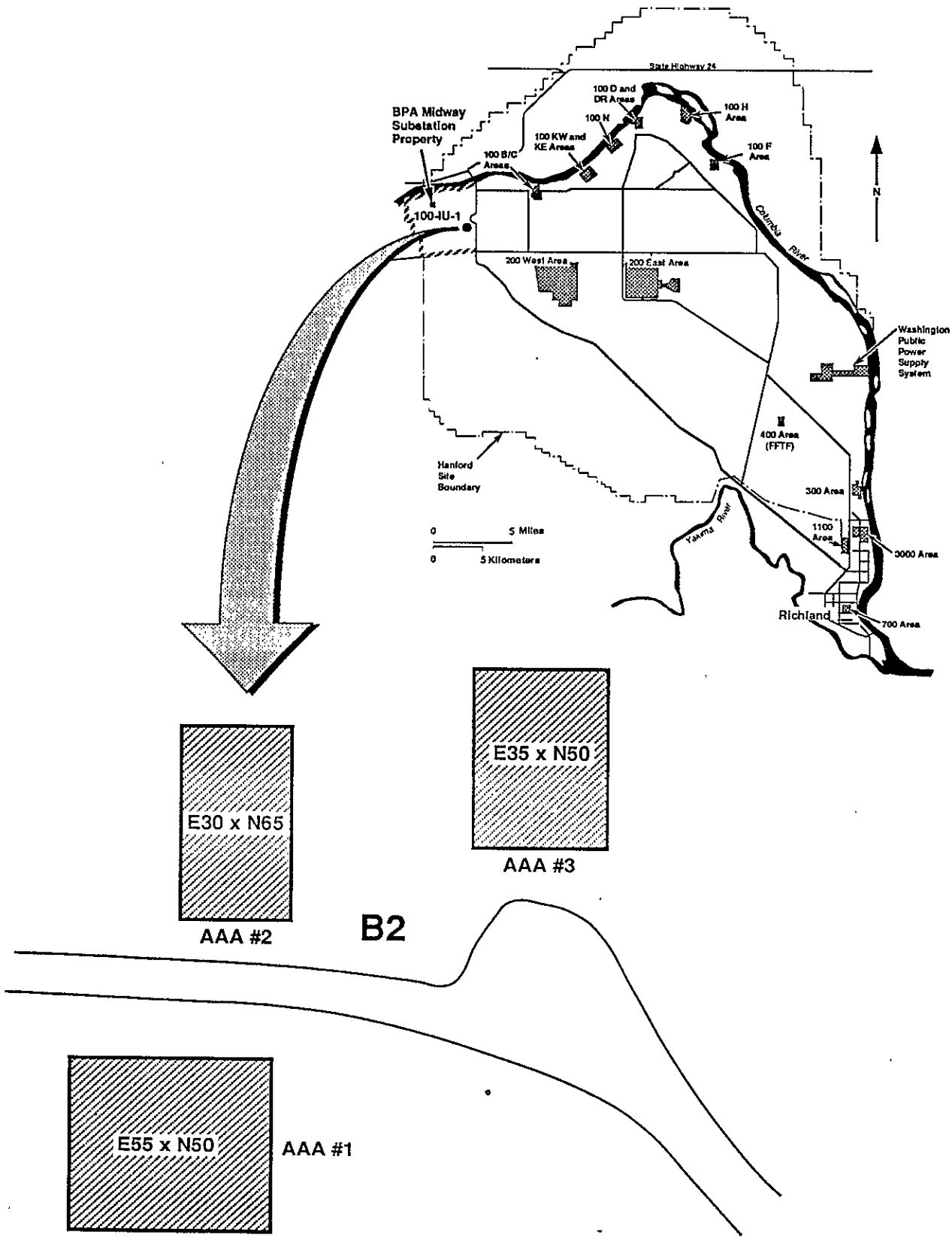


Figure 9. H 70 Anti-Aircraft Artillery Site No. 1
Ground-Penetrating Radar Summary.

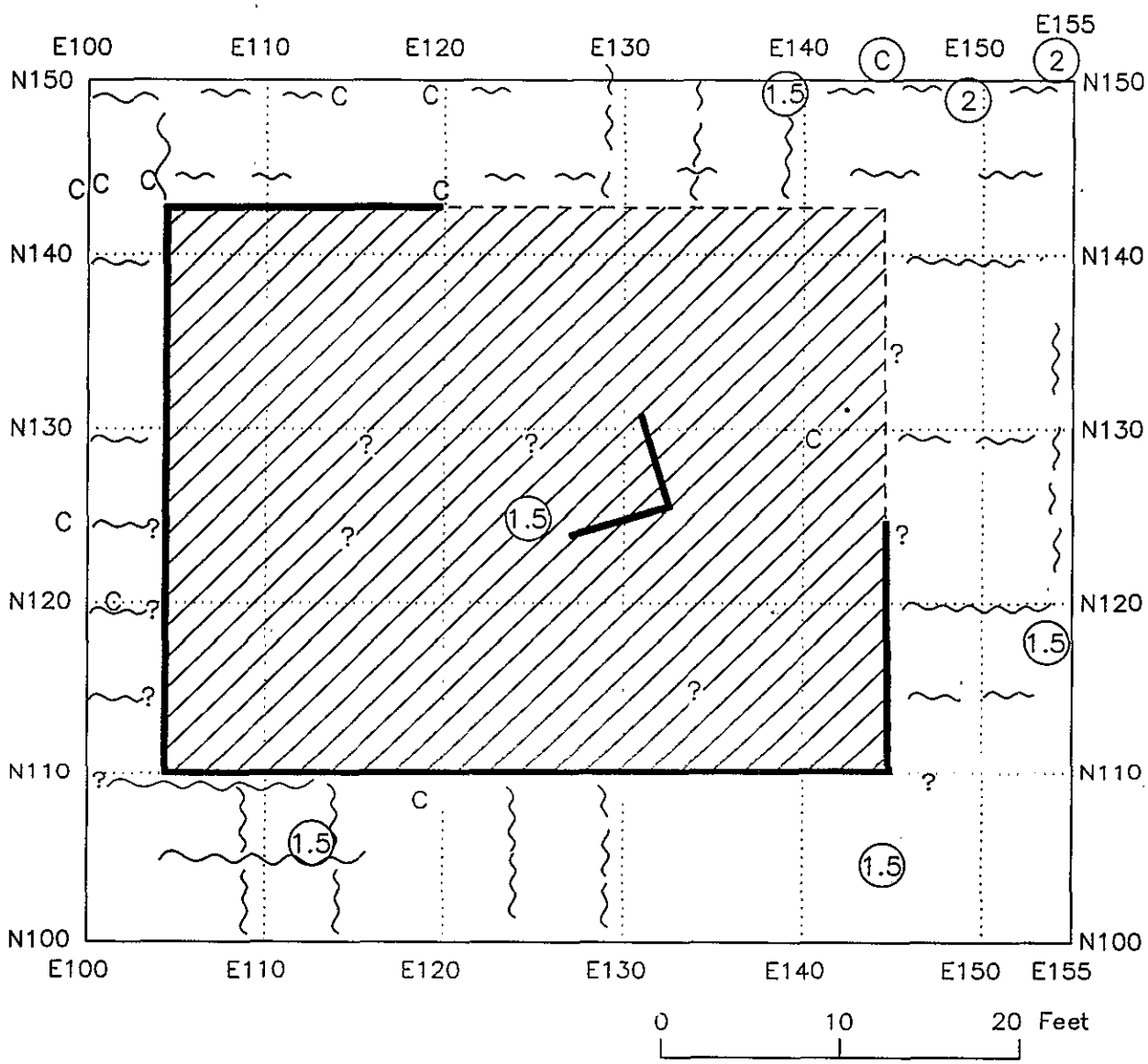


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Figure 10. H 70 Anti-Aircraft Artillery Site No. 2
Ground-Penetrating Radar Summary.

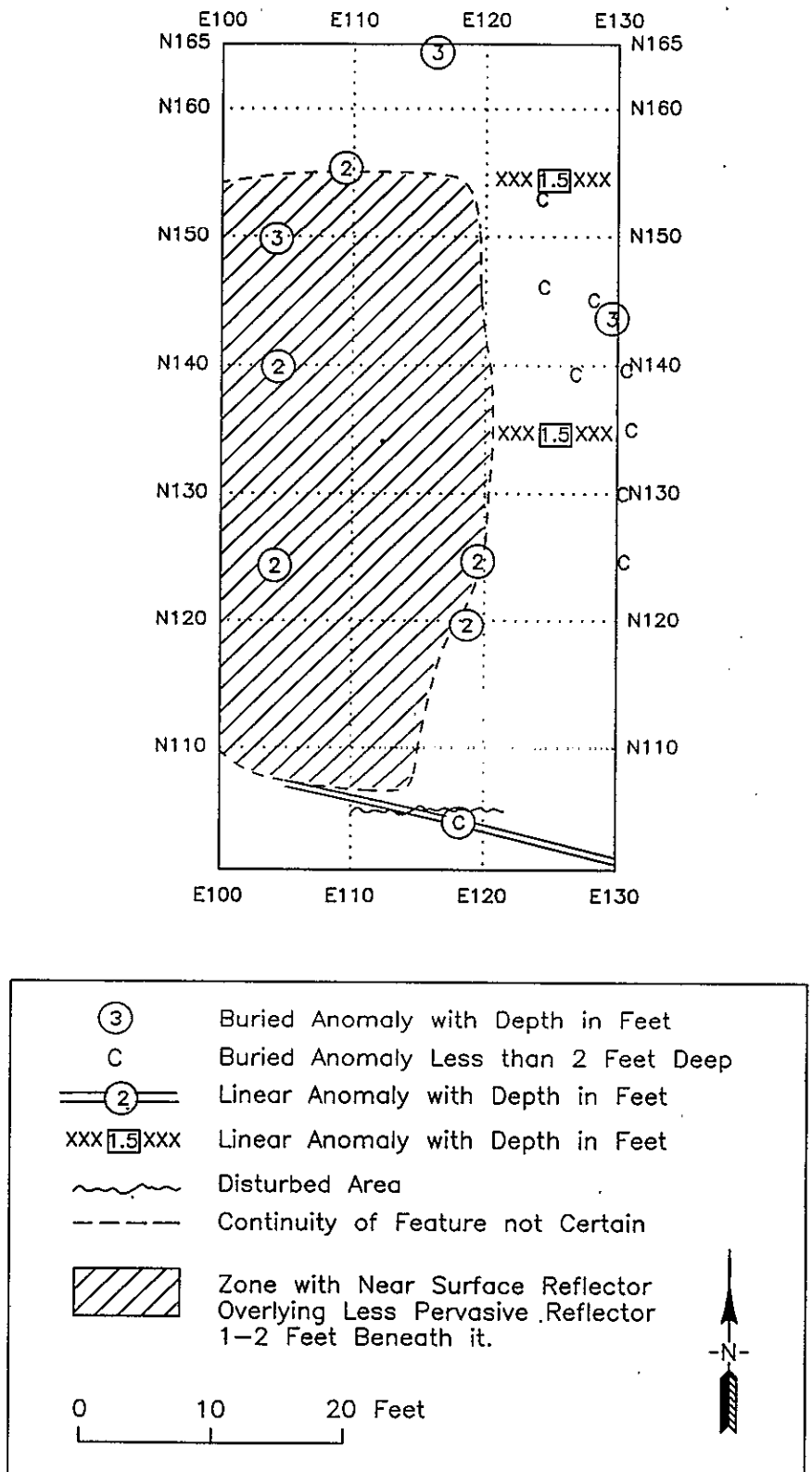

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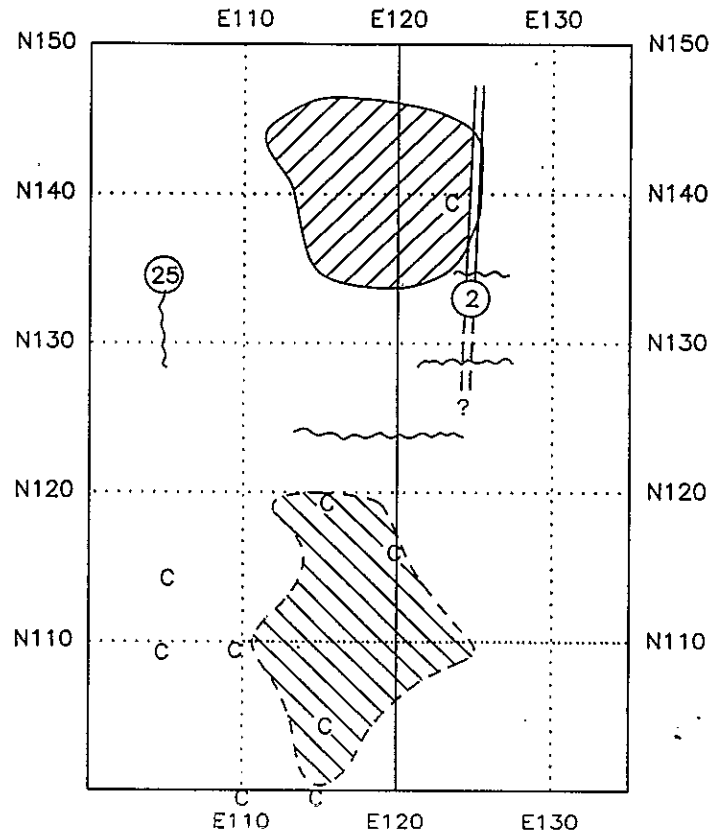
Figure 11. H 70 Anti-Aircraft Artillery Site No. 3
Ground-Penetrating Radar Summary.



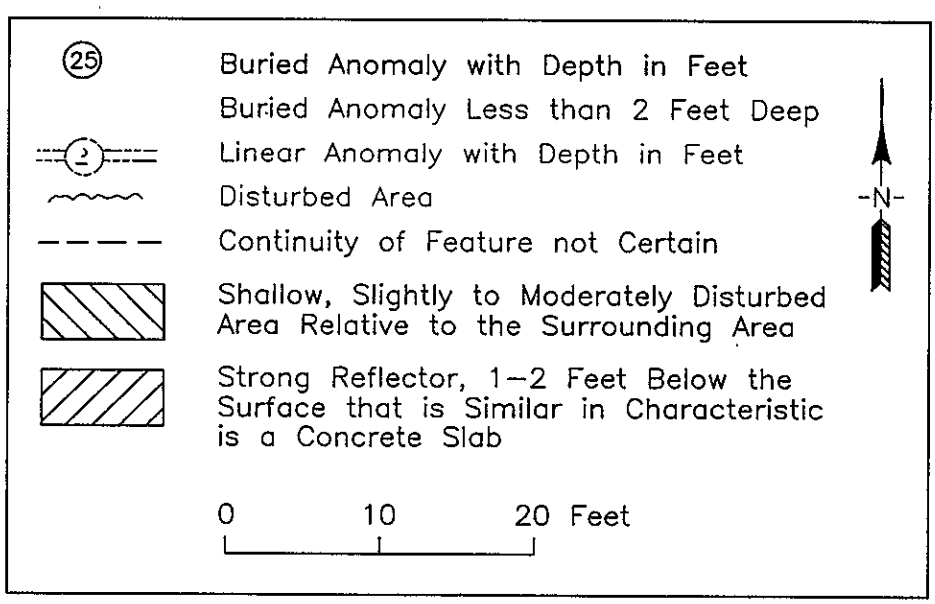


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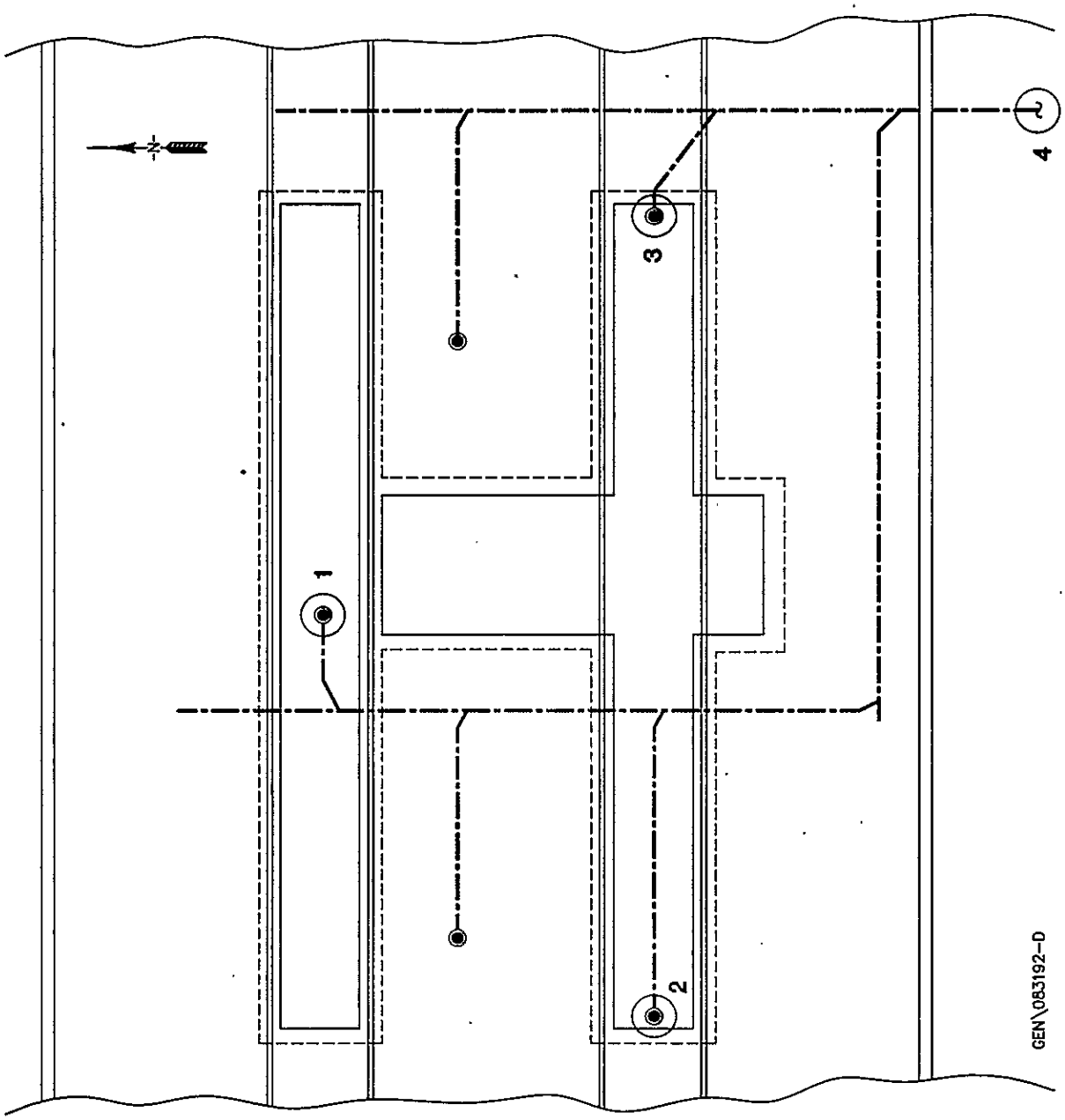
Figure 12. Riverland Rail Yard Maintenance Facility Sample Locations.



APPENDIX A

JOINT LETTER FROM REGULATORS

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EPA

JUL 08 1992

Mr. Steve Wisness
Hanford Project Manager
U.S. Department of Energy
P.O. Box 550, A5-15
Richland, Washington 99352

Re: Approval to Proceed on Expedited Response Action at the River Rail Wash Pit.

Dear Mr. Wisness:

The Washington State Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA) have completed their review of the Expedited Response Action (ERA) candidate sites.

During the meeting held on June 15th, 1992, Ecology and EPA verbally approved beginning the Engineering Evaluation and Cost Analysis (EE/CA) for the River Rail Wash Pit. This letter transmits our formal approval to proceed.

EPA has lead regulatory oversight on this ERA. Mr. Dennis Faulk will be the EPA Unit Manager on this site. Mr. Jack Donnelly will be the Unit Manager from Ecology. In addition, Ecology and EPA recommend establishing an administrative record for this ERA at this time.

If you have any questions or concerns regarding this matter please feel free to contact Mr. Jack Donnelly of Ecology at (509) 546-2990 or Mr. Dennis Faulk of EPA at (509) 376-8631.

Sincerely,

Paul T. Day
Hanford Project Manager

David C. Nylander
Kennewick Office Manager

cc: Andy Boyd, EPA
Julie Erickson, DOE
George Hofer, EPA
Dave Jansen, Ecology
Wayne Johnson, WHC
Darci Teel, Ecology
~~Tim Veneziano~~ WHC
Administrative Record (ERA River Rail Wash Pit)

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APPENDIX B

SOIL SAMPLE DATA SUMMARY

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Riverland Rail Yard Maintenance Facility and Munitions Cache Sample Results. (sheet 1 of 2)

Sample no., location, and matrix	TPH (ppm)		Radionuclides (gamma scan) (pCi/g)									
	Diesel	Heavier than diesel	^{109}Cd	^{57}Co	^{60}Co	^{137}Cs	^{152}Eu	^{154}Eu	^{40}K	^{226}Ra	^{228}Th	^{232}Th
Maintenance Facility												
B01928, Drain 1, concrete	600	NR	1.21	NR	NR	NR	NR	NR	NR	0.543	NR	0.178
B01929, Drain 3, concrete	390	NR	NR	NR	NR	0.180	NR	NR	NR	0.562	N.R	0.178
B01930, Drain 2, concrete	1,800	NR	1.26	0.165	0.158	0.105	0.499	NR	7.19	0.525	NR	NR
B01931, Duplicate of B01930	570	NR	NR	0.144	0.178	NR	0.482	NR	5.08	0.558	NR	0.208
B01932, Split of B01930	210	2,210	NR	NR	NR	NR	NR	NR	NR	0.54	0.67	0.50
B01933, Background, concrete	NR	NR	1.33	0.315	NR	NR	NR	NR	9.84	0.559	NR	0.297
B01934, Equipment blank	NR	NR	NR	NR	NR	NR	NR	NR	1.03	NR	NR	NR
B01935, Drain pipe, soil	220	NR	NR	0.676	0.382	19.6	1.91	0.131	7.72	0.344	NR	NR
B01936, Trip blank	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Riverland Rail Yard Maintenance Facility and Munitions Cache Sample Results. (sheet 2 of 2)

Sample no., location, and matrix	TPH (ppm)		Radionuclides (gamma scan) (pCi/g)									
	Diesel	Heavier than diesel	^{109}Cd	^{57}Co	^{60}Co	^{137}Cs	^{152}Eu	^{154}Eu	^{40}K	^{226}Ra	^{228}Th	^{232}Th
Munitions Cache												
B01937, Munitions cache, soil[a]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
B01938, Split of B01937[b]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

NOTE: Radionuclide concentrations are below guidance criteria for radiological controls.
[a]Nitrate analysis resulted in 32.9 mg-N/kg.
[b]Nitrate analysis resulted in 14.4 mg-N/kg.
NR = non-reportable.
TPH = total petroleum hydrocarbons.

Pesticide/Herbicide Container Soil Sample Analysis Results.

Sample no., location, matrix	Aldrin (ppb)	Dieldrin (ppb)	4,4'-DDE (ppb)
B01939, pesticide site soil	2,000	3,400	57
B01940, Split of B01939	470	590	55
H92078, Washington Department of Ecology split of B01939	27,000	38,000	

Soil Gas Survey Analysis.

Sample no.	Location	Sample analysis results
B01941	Equipment blank	A soil gas survey did not detect any soil gas contamination.
B01942	RL-SG-1	
B01943	RL-SG-2	
B01944	RL-SG-2A	
B01945	RL-SG-3	
B01946	RL-SG-4	
B01947	RL-SG-5	
B01948	Standard	
B01949	Ambient Air	
B01950	RL-SG-6	
B01951	RL-SG-7	
B01952	RL-SG-8	
B01953	RL-SG-8 Duplicate	
B01954	RL-SG-9	
B01955	RL-SG-10	
B01956	Standard	

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APPENDIX C

COST ESTIMATES

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APPENDIX C

COST ESTIMATES

1. OU Cleanup with Laser

PESTICIDE CONTAINER SITE

Assumptions:

- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Materials include drums, plastic bags, field screening kits, Personnel Protection Equipment (PPE), grass seed, etc.
- Equipment includes fuel for trucks and backhoe for leveling.

Exempt Support	32 hr @$70.00/hr	$ 2.2K
D&D Workers	32 hr @$40.00/hr	1.3K
Drive	8 hr @$50.00/hr	.4K
Equip. Operator	4 hr @$50.00/hr	.2K
HPT	4 hr @$40.00/hr	.2K
Sampler & Lab Tech	16 hr @$60.00/hr	1.0K
Offsite Lab Samples	4 samples @$800.00 each	3.2K
Storage/Disposal	8 cont. of HW @$700.00/cont.	5.6K
Materials		4.0K
Equipment		.2K
	Subtotal	$18.3K

RIVERLAND RAILROAD MAINTENANCE FACILITY WASTE SITE

Assumptions:

- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Any fill material will be obtained from a nearby local source.
- Diesel-contaminated soil will be bioremediated.
- Materials include wire, posts, plastic, signs, field screening kits, grass seed, etc.
- Equipment includes Xenon Laser and fuel for trucks, generator, and backhoe.

Bioremediation Task

Exempt Support	120 hr @$70.00/hr	$ 8.4K
Driver	80 hr @$50.00/hr	4.0K
Equip. Operator	80 hr @$50.00/hr	4.0K
Sampler	8 hr @$60.00/hr	2.4K
Offsite Lab Samples	4 Samples @$800.00 each	3.2K
Materials		3.0K
Equipment		2.5K
	Subtotal	$27.5K

Laser Cleanup Task

Exempt Support	200 hr @$70.00/hr	$ 14.0K
D&D Worker	160 hr @$40.00/hr	6.4K
Sampler	8 hr @$60.00/hr	4.8K
Offsite Lab Samples	8 Samples @$800.00 each	6.4K
Materials		3.0K
Equipment		105.0K
	Subtotal	$139.6K

ORDNANCE SURVEY

Assumptions:
- The 100-IU-4 Operable Unit aerial ordnance survey will be performed as part of a Hanford Reservation Ordnance survey.
- Any ordnance cleanup efforts will be funded as part of a Hanford Reservation ordnance cleanup project.

Survey Costs $100.0K

MUNITIONS CACHE - Fill in munitions cache hole. $0.5K

LANDLORD CLEANUP

Assumptions:
- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Any fill material will be obtained from a nearby local source.
- Transite removal will require the use of Parr's and personnel monitoring for a 3-day period to establish a historical baseline.
- Materials include masks, protective suits, plastic bags, signs, field screening kits, grass seed, etc.
- Equipment includes fuel for trucks and backhoe.
- There will be one barrel for military battery waste.
- Hazardous waste volume 1,200 ft^3.

Exempt Support	200 hr @$70.00/hr	14.0K
D&D Worker	320 hr @$40.00/hr	12.8K
Driver	296 hr @$50.00/hr	14.8K
Equip. Operator	88 hr @$50.00/hr	4.4K
Riggers	16 hr @$50.00/hr	.8K
HPT	100 hr @$40.00/hr	4.0K
HEHF Tech	24 hr @$130.00/hr	3.1K
Personnel Monitoring	9 samples over 3-day period @$146.00/sample	1.3K
Central Landfill Disposal	80 yd @$27.00/$yd^3$	2.2K
Battery Disposal	1 drum @$700.00 each	.7K
Materials		3.5K
Equipment		4.0K
	Subtotal	$65.6K
30% Contingency		105.5K

Alternative Total Costs $ 457.0K

2. Hazardous Waste Removal and Offsite Disposal

PESTICIDE CONTAINER SITE

Assumptions:
- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Materials include drums, plastic bags, field screening kits, Personnel Protection Equipment (PPE), grass seed, etc.
- Equipment includes fuel for trucks and backhoe for leveling.

Exempt Support	32 hr @$70.00/hr	$ 2.2K
D&D Workers	32 hr @$40.00/hr	1.3K
Driver	8 hr @$50.00/hr	.4K
Equip. Operator	4 hr @$50.00/hr	.2K
HPT	4 hr @$40.00/hr	.2K
Sampler & Lab Tech	16 hr @$60.00/hr	1.0K
Offsite Lab Samples	4 samples @$800.00 each	3.2K
Storage/Disposal	8 cont. of HW @$700.00/cont.	5.6K
Materials		4.0K
Equipment		.2K
	Total	$18.3K

ORDNANCE SURVEY

Assumptions:
- The 100-IU-4 Operable Unit aerial ordnance survey will be performed as part of a Hanford Reservation Ordnance survey.
- Any ordnance cleanup efforts will be funded as part of a Hanford Reservation ordnance cleanup project.

Survey Costs	$100.0K

RIVERLAND RAILROAD MAINTENANCE FACILITY WASTE SITE

Assumptions:
- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Any fill material will be obtained from a nearby local source.
- Diesel-contaminated soil will be bioremediated.
- Materials include wire, posts, plastic, signs, field screening kits, grass seed, etc.
- Equipment includes fuel for trucks and backhoe.

Exempt Support	120 hr @$70.00/hr	$ 8.4K
Driver	240 hr @$50.00/hr	12.0K
Equip. Operator	80 hr @$50.00/hr	4.0K
D&D Worker	320 hr @$40.00/hr	12.8K
HPT	80 hr @$40.00/hr	3.2K
Sampler	8 hr @$60.00/hr	2.4K
Offsite Lab Samples	4 Samples @$800.00 each	3.2K
Storage/Disposal	1,200 ft^3 @$81.00/$ft^3$	97.2K
Materials		12.0K
Equipment		5.0K
	Total	$160.2K

MUNITIONS CACHE - Fill in munitions cache hole. $0.5K

LANDLORD CLEANUP

Assumptions:

- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Any fill material will be obtained from a nearby local source.
- Transite removal will require the use of Parr's and personnel monitoring for a 3-day period to establish a historical baseline.
- Materials include masks, protective suits, plastic bags, signs, field screening kits, grass seed, etc.
- Equipment includes fuel for trucks and backhoe.
- There will be one barrel for military battery waste.

Exempt Support	200 hr @$70.00/hr	14.0K
D&D Worker	320 hr @$40.00/hr	12.8K
Driver	296 hr @$50.00/hr	14.8K
Equip. Operator	88 hr @$50.00/hr	4.4K
Riggers	16 hr @$50.00/hr	.8K
HPT	100 hr @$40.00/hr	4.0K
HEHF Tech	24 hr @$130.00/hr	3.1K
Personnel Monitoring	9 samples over 3-day period @$146.00/sample	1.3K
Central Landfill Disposal	80 yds @$27.00/$yd^3$	2.2K
Battery Disposal	1 drum @$700.00 each	.7K
Materials		3.5K
Equipment		4.0K
	Total	$65.6K
30% Contingency		103.4K
	Alternative Total Costs	**$ 448.0K**

3. OU Cleanup with Sandblasting

PESTICIDE CONTAINER SITE

Assumptions:
- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Materials include drums, plastic bags, field screening kits, Personnel Protection Equipment (PPE), grass seed, etc.
- Equipment includes fuel for trucks and backhoe for leveling.

Exempt Support	32 hr @$70.00/hr	$ 2.2K
D&D Workers	32 hr @$40.00/hr	1.3K
Driver	8 hr @$50.00/hr	.4K
Equip. Operator	4 hr @$50.00/hr	.2K
HPT	4 hr @$40.00/hr	.2K
Sampler & Lab Tech	16 hr @$60.00/hr	1.0K
Offsite Lab Samples	4 samples @$800.00 each	3.2K
Storage/Disposal	8 cont. of HW @$700.00/cont	5.6K
Materials		4.0K
Equipment		.2K
	Total	$18.3K

RIVERLAND RAILROAD MAINTENANCE FACILITY WASTE SITE

Assumptions:
- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Any fill material will be obtained from a nearby local source.
- Diesel-contaminated soil will be bioremediated.
- Materials include sand, fresh air, PPE, wire, posts, plastic, signs, field screening kits, grass seed, etc.
- Equipment includes fuel for trucks, generator, compressor, and backhoe.

Bioremediation Task

Exempt Support	120 hr @$70.00/hr	$ 8.4K
Driver	80 hr @$50.00/hr	4.0K
Equip. Operator	80 hr @$50.00/hr	4.0K
Sampler	8 hr @$60.00/hr	2.4K
Offsite Lab Samples	8 Samples @$800.00 each	6.4K
Materials		3.0K
Equipment		2.5K
	Total	30.7K

Sandblasting

Exempt Support	100 hr @$70.00/hr	7.0K
D&D Workers	120 hr @$40.00/hr	4.8K
Driver (Support)	8 hr @$50.00/hr	.4K
HPT	40 hr @$40.00/hr	1.6K
Sampler	8 hr @$60.00/hr	2.4K
Offsite Lab Samples	8 Samples @$800.00 each	6.4K
Materials		2.0K
Equipment		1.0K
	Total	25.6K

ORDNANCE SURVEY

Assumptions:
- The 100-IU-4 Operable Unit aerial ordnance survey will be performed as part of a Hanford Reservation Ordnance survey.
- Any ordnance cleanup efforts will be funded as part of a Hanford Reservation ordnance cleanup project.

Survey Costs	$100.0K

MUNITIONS CACHE - Fill in munitions cache hole. $0.5K

LANDLORD CLEANUP

Assumptions:
- The labor costs include overhead rounded to the nearest one-hundred dollars.
- Any fill material will be obtained from a nearby local source.
- Transite removal will require the use of Parr's and personnel monitoring for a 3-day period to establish a historical baseline.
- Materials include masks, protective suits, plastic bags, signs, field screening kits, grass seed, etc.
- Equipment includes fuel for trucks and backhoe.
- There will be one barrel for military battery waste.

Exempt Support	200 hr @$70.00/hr	14.0K
D&D Worker	320 hr @$40.00/hr	12.8K
Driver	296 hr @$50.00/hr	14.8K
Equip. Operator	88 hr @$50.00/hr	4.4K
Riggers	16 hr @$50.00/hr	.8K
HPT	100 hr @$40.00/hr	4.0K
HEHF Tech	24 hr @$130.00/hr.	3.1K
Personnel Monitoring	9 samples over 3-day period @$146.00/sample	1.3K
Central Landfill Disposal	80 yd @$27.00/$yd^3$	2.2K
Battery Disposal	1 drum @$700.00 each	.7K
Materials		3.5K
Equipment		4.0K
	Total	$65.6K
30% Contingency		72.2K
	Alternative Total Costs	**$ 312.9K**

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